

IN THE CLAIMS

1. – 12. (canceled)

13. (new) A communication method in a multicast communication network, including at least one Layer-2 switch interposed between two Layer-3 switches, for distributing multicast packets from a multicast transmitting terminal (source) through at least the Layer-2 switch to a plurality of multicast receiving terminals (receivers), comprising:

forming a receiving terminal discrimination mechanism for discriminating multicast receiving terminals for receiving distribution of said multicast packets by using a discrimination packet, to be transmitted from said multicast receiving terminal to said multicast transmitting terminal when sending an IGMP-JOIN packet, for teaching said Layer-2 switch of an existence of the multicast receiving terminal requesting distribution of said multicast packets under the Layer-2 switch, the discrimination packet including an IP header and MAC header and wherein an IP source address and MAC source address are an IP address and MAC address of a multicast group to which said multicast receiving terminal belongs; and

distributing multicast packets selectively by said receiving terminal discrimination mechanism only to multicast receiving terminals requesting distribution of said multicast packets when there are multicast receiving terminals relating to such requests under said Layer-2 switches,

wherein each of said Layer-3 switches relays said multicast packets transmitted from said multicast transmitting terminal (source) through the Layer-2 switch and distributes them to said multicast receiving terminals requesting distribution of said multicast packets and transmits said discrimination packet, where each of the Layer-3 switches comprises a

decision function unit for deciding if a received packet is the discrimination packet or a general packet other than the discrimination packet and a header processing function unit for processing the MAC header of said received packet and performing different processing in accordance with results of decision of said decision function unit.

14. **(new)** The communication method as set forth in claim 13, wherein said header processing function unit does not process the source address of said MAC header when said decision function unit decides that said received packet is the discrimination packet and performs general rewriting processing on said MAC header when it decides that said received packet is the general packet.

15. **(new)** The communication method as set forth in claim 13, wherein said decision function unit decides if said received packet is the discrimination packet or the general packet in accordance with whether said IP header and MAC header of the received packet are a multicast type address or a unicast type address.

16. **(new)** A multicast receiving terminal (receiver) for receiving distribution of multicast packets from a multicast transmitting terminal through at least one Layer-2 switch, interposed between two Layer-3 switches,

provided with a discrimination packet transmitting function unit for generating a discrimination packet for teaching said Layer-2 switch of an existence of the multicast receiving terminal requesting distribution of said multicast packets under the Layer-2 switch and transmitting the discrimination packet to said multicast transmitting terminal when sending an IGMP-JOIN packet, the discrimination packet including an IP header and MAC

header and wherein the IP source address and MAC source address are an IP address and MAC address of a multicast group to which said multicast receiving terminal belongs,

wherein each of said Layer-3 switches relays said multicast packets transmitted from said multicast transmitting terminal (source) through the Layer-2 switch and distributes them to said multicast receiving terminal and transmits said discrimination packet, where each of the Layer-3 switches comprises a decision function unit for deciding if a received packet is the discrimination packet or a general packet other than the discrimination packet and a header processing function unit for processing the MAC header of said received packet and performing different processing in accordance with results of decision of said decision function unit.

17. **(new)** The multicast receiving terminal (receiver) as set forth in claim 16, wherein said header processing function unit does not process the source address of said MAC header when said decision function unit decides that said received packet is the discrimination packet and performs general rewriting processing on said MC header when it decides that said received packet is the general packet.

18. **(new)** The multicast receiving terminal (receiver) as set forth in claim 16, wherein said decision function unit decides if said received packet is the discrimination packet or the general packet in accordance with whether said IP header and MAC header of the received packet are a multicast type address or a unicast type address.

19. **(new)** The multicast receiving terminal (receiver) as set forth in claim 16, wherein said discrimination packet is transmitted periodically by unicast.

20. **(new)** A Layer-2 switch, interposed between two Layer-3 switches, for relaying multicast packets transmitted from a multicast transmitting terminal (source) and distributing them to a multicast receiving terminal (receiver), comprising;

a snooping function unit for monitoring for a discrimination packet transmitted from said multicast receiving terminal to said multicast transmitting terminal when sending an IGMP-JOIN packet so as to teach said Layer-2 switch that there is a multicast receiving terminal requesting distribution of said multicast packets existing under the Layer-2 switch, the discrimination packet including an IP header and MAC header and wherein an IP source address and MAC source address are an IP address and MAC address of a multicast group to which said multicast receiving terminal belongs; and

a learning function unit for learning an existence of said multicast receiving terminal based on said discrimination packet extracted by said snooping function unit,

wherein each of said Layer-3 switches relays said multicast packets transmitted from said multicast transmitting terminal (source) through the Layer-2 switch and distributes them to said multicast receiving terminal and transmits said discrimination packet, where each of the Layer-3 switches comprises a decision function unit for deciding if a received packet is the discrimination packet or a general packet other than the discrimination packet and a header processing function unit for processing the MAC header of said received packet and performing different processing in accordance with results of decision of said decision function unit.

21. **(new)** The Layer-2 switch as set forth in claim 20, wherein said learning function unit includes a distribution table, and the distribution table learns said IP source address and

MAC source address, then multicast packets transmitted from said multicast transmitting terminal (source) are distributed in accordance with said distribution table.